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PERSONAL-SOCIAL AND VOCATIONAL SCALE FOR THE MENTALLY RETARDED.

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AN EVALUATION INSTRUMENT WAS DEVELOPED TO ASSESS THE PERSONAL-SOCIAL AND VOCATIONAL COMPETENCE OF DEPENDENT AND SEMIDEPENDENT MENTALLY RETARDED INDIVIDUALS IN A VOCATIONAL WORKSHOP SETTING. TWO PRETESTS WERE DEVELOPED, ADMINISTERED, EVALUATED, AND REFINED BEFORE THE FINAL FORM OF THE EVALUATION INSTRUMENT WAS CONSTRUCTED. FOLLOWING ANALYSES OF SUCH PRETEST SUBSCALES AS "MANUAL SKILLS," "COGNITIVE SKILLS," "DEPENDABILITY-RESPONSIBILITY," AND "SOCIAL-EMOTIONAL," 30 ITEMS WHICH HAD SHOWN APPROPRIATE STATISTICAL PROPERTIES IN THE PRETEST WERE USED FOR THE FINAL FORM OF THE SCALE. DATA ON THE RELIABILITY OF THE FINAL FORM OF THE SCALE WERE PRESENTED IN TABLES APPENDED TO THE REPORT. ODD-EVEN CORRELATIONS WERE COMPUTED FOR THE MALE, FEMALE, AND TOTAL SAMPLE WHICH INDICATED A HIGH DEGREE OF INTERNAL CONSISTENCY. A TEST-RETEST COEFFICIENT OF .85 INDICATED THAT THE SCALE COULD BE USED RELIABLY BY INDIVIDUALS WHO ARE FAMILIAR WITH AN ENROLLEE'S PERFORMANCE. (GD)

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U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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PROBLEM

There has been considerable emphasis on the development of community resources for the training of mentally retarded of all ages. Particularly, in recent years, there has been a tremendous increase in the number of workshops and training centers for dependent and semi-dependent mentally retarded individuals. The primary purposes of these workshops are to further the individual's personal and social development as well as his vocational competence. This training is not only for the purpose of providing a sheltered environment for the mentally retarded but, as Cohen (1963) points out, there has been a growth in programs designed to prepare such individuals for a productive role in society in situations not solely designed for the retarded. Various Federal and State enactments have provided impetus to the latter thrust. For example, the governor of the State of New York recently issued an executive order directing all state agencies to follow newly established procedures for employing qualified mentally retarded persons in the State Civil Service System (Mental Hygiene News, 1966).

Virtually all of the literature dealing with the vocational aspects of training the mentally retarded indicate the necessity for screening and evaluational procedures in determining the effectiveness of these programs (DiMichael, 1952; Dubin, 1956; Kirk, Karnes and Kirk, 1955; and Kolstoe, 1960). The continuous evaluation of workshop programs is particularly stressed by the Office of Vocational Rehabilitation and, in their estimation, such evaluation has been found wanting. With the exception of a few check lists prepared for specific work situations, there are no evaluational scales that have general utility in assessing the personal-social and vocational competence of the mentally retarded in varied work-

shop environments.

With the tremendous increase in public school enrollment of mentally retarded individuals who will be eligible for inclusion in sheltered workshops, the need for making accurate judgments in determining which individuals could profit most from such experiences is important. Further, with the present emphasis on returning as many children as possible to the community from state institutions, there is an increasing need for a reliable scale in the screening process in the placement of these individuals. In many instances, the placement from the institution is made to a foster home. Because these individuals are not under the supervision of their own parents, misjudgments as to the children's personal and social status could prove damaging to the institution's vocational placement program. Wolfensberger (1965) asserts that one of the most spectacular failures in the field of mental retardation has been in vocational prediction.

After the individual has been selected for the workshop, an evaluational instrument will be of value in assessing his progress as well as the planning of training procedures to further his development. An evaluational scale will permit formal means of testing the effectiveness of various workshop procedures. The scale, as a research instrument, should have theoretical as well as practical import, because it will permit the investigation of the learning ability as well as the procedures that are most likely to prove efficacious in the social-personal and vocational development of mentally retarded individuals.

OBJECTIVES

The objective of the study is to develop a scale to assess the personal-social and vocational competence of dependent and semi-dependent mentally retarded individuals.

RELATED RESEARCH

DiMichael (1960) has discussed the difficulties relating to the vocational evaluation of the mentally retarded. He states that the enthusiasm for work samples among workshop personnel is high but the claims made for them can hardly be justified. The direction toward systematizing evaluation by the development of rating scales appears to DiMichael as particularly useful.

DuBrow (1960) investigated the factors inhibiting the vocational rehabilitation of mentally retarded young adults. A major aspect of this work was the development of diagnostic, evaluation, and training methods. He analyzed the case records of individuals in four classifications in order to determine factors that differentiated among the groups. He states that the indications are that the workshop made the trainees more self-directive and they displayed more initiative and self-reliance. Among the research recommendations is the necessity for determining the behavioral components which constitute maximum or optimum functioning for the retardate within a sheltered workshop setting. Further, he states that there is a continuing need for research in the refinement of diagnostic and prognostic measures and the development of scales for assessing changes within individuals.

Tobias' (1960) argument regarding the efficacy of using existing

psychological and achievement tests to measure the vocational abilities of the mentally retarded is cogent. He states, "Standard tests that measure one-trial learning will reinforce the initial diagnosis of retardation without supplying the information more necessary for the determination of vocational feasibility. Proper evaluation of the retarded seems to require a form of testing that permits observation of more than single-trial learning." The scale developed under this grant is designed to overcome this problem in that the assessment of the individual is based on observation of his characteristic performance within the context of his work situation. In this sense the scale is not a test but offers workshop supervisors the kind of instrument suggested at a recent conference on the vocational rehabilitation of the mentally retarded. (Southern Methodist University, 1960. It was suggested that standardized, multi-purpose evaluation tests were needed which can be given by persons of non-psychological backgrounds. The report of this conference states further, "Rating scales, if carefully devised, may be of value, not only in determining the length of training, job placement and realistic goals set for the subject, but for use of rehabilitation counselors, social workers, workshop staff, parents, and to the retarded themselves, to help them see where they are and where they could be. (p.67)." In discussing research the Southern Methodist University report stressed the need for new methods and instruments.

The importance of such new instruments was emphasized for the following purposes (p.85):

"a. It would make possible a better comparison of groups worked with by various research or demonstration programs.

b. It would make possible a more accurate description of intake policies.

c. It would make possible more intelligent and realistic use of findings by one project in another setting.

d. It would create more accepted descriptions regarding vocational potentials."

Many job requirements are such that they cannot be meaningfully called occupations. This is particularly true in the workshop or semi-independent work situation for the mentally retarded where the individual is more likely to learn a number of related skills, competencies and attitudes useful for a variety of jobs rather than an occupation. Goldstein (1964) points out that jobs proper are generally gross in their description so that it is difficult to determine to what extent jobs with similar titles are similar in their elements. The present vocational competency scale was developed so as to be sufficiently comprehensive in the general "elements" and is useful in a wide variety of contexts. For, as Thompson (1958) has indicated, there is considerable variation among workshops and each program must be evaluated in terms of its specific functions. Because the nature of jobs in workshops vary considerably, specifying performance in terms of tasks rather than jobs increases the utility of the scale. Tasks, as part of the jobs, are defined as the smallest component of performance which has a distinct and independent purpose (Gagne, 1965).

The description of the tasks included in this scale are in terms of actual performance rather than presumed abilities or capacities. This has two advantages: (1) the performance to be observed is stated in behavioral terms thus minimizing the level of inference in the evalua-

tional process and increasing the reliability of judgment and (2) reduces the technical considerations in the evaluational process in that no special test situations need be established, nor is it necessary for a psychologist to "administer" the scale.

PROCEDURE

All workshops listed in the Directory of Workshops for the Handicapped published by the Office of Vocational Rehabilitation, United States Office of Health, Education and Welfare who included ten or more mentally retarded individuals in their workshops were contacted. The directors of these workshops were asked to cooperate in the norming procedure and were sent a questionnaire (see Appendix A) regarding the description of the retarded individuals in their workshop and the type of activities in which they participated. Sixty-eight workshop directors agreed to cooperate in the norming of the scale.

Within each region of the United States an effort was made to obtain a wide range of job activities for each pretest and the norming samples. The scale was developed using three rating groups--two for the purposes of pretesting the scale and one for the purpose of establishing norms for the scale. The participating workshops were assigned to one or more of the rating groups, depending upon the number of individuals they had agreed to rate. Where a workshop was assigned to more than one rating group, different individuals were rated in each rating group. In no case was an individual included in more than one group. The workshops were instructed to rate only individuals who were 18 years of age or older, whose intelligence quotients were between 20 and 75, and who were free from severe physical, motor or sensory handicaps.

Development of Pretests and Final Forms

Prior to the development of the first form of the scale a number of procedures were followed in order to obtain adequate behavioral coverage deemed crucial to the development of vocational competence of mentally retarded adults.

First, a number of workshops in the immediate area were visited. During these visits observations were made of the enrollees in their natural work situation. In addition to these on-the-job observations a detailed interview was conducted with both the workshop directors and the work supervisors. The purpose of these interviews was to gain a complete description of the activities conducted in the workshop as well as to ascertain the workshop personnel's perception of which behaviors are important in fostering the vocational competence of their enrollees.

Second, available non-standardized check-lists which workshops had developed for their own use were reviewed. Behaviors which were common to these check-lists were analyzed for their scalability and relevance to the definition of vocational competence.

Third, discussions were held with administrators and consultants of the California State Department of Education, the public schools, and Vocational Rehabilitation as a check on content validity.

After extensive discussions, observations and review of the available literature on the vocational competence of mentally retarded adults, items for the first experimental form of the scale were written. The following criteria were used in writing items for the scale:

(1) The content of each item must be unidimensional. The various levels within an item must reflect different levels of competency for the same behavior.

(2) Each item must permit scaling on at least four levels to permit fine discriminations of vocational competence among individuals.

(3) There must be high rank order agreement in the ordering of the levels within each item on the continuum of vocational competence.

(4) The items must contain objective behavioral statements which

are devoid of value judgments and do not reflect particular cultural orientations.

(5) The items must contain behaviors which are directly observable by the workshop supervisor in his on-the-job contact with the enrollees.

(6) The items must contain behaviors which are appropriate to both sexes.

(7) The items should be applicable to workshops for the mentally retarded regardless of the specific jobs or work performance required.

(8) The items should be sensitive to detecting increments during the course of training.

Based on the above criteria a large pool of potential items were written. These items were sent to a number of workshop directors, supervisors and state department consultants with instructions to (1) rank order the levels within each item from high to low vocational competence and (2) to indicate, on a five point scale, the cruciality of the behavior scaled in each item.

Prior to the distribution of the first pretest of the scale, the majority of the workshops participating was visited by a member of the project. The purpose of these visits was to discuss the objectives of the project, the development of the scale, and the manner in which ratings were to be made. It was emphasized that the enrollee should be rated by the workshop supervisor who was most familiar with the enrollee's performance; the enrollee should be rated on his actual performance and not presumptive ability; and the enrollee should be rated on each item at the level at which he characteristically performs.

ANALYSES OF DATA AND FINDINGS

First Pretest

In the first pretest there were 330 individuals distributed among 27 workshops. This sample included 184 males and 146 females. Analyses of the CA and I.Q. distributions of the males and females indicated that the two groups were comparable on these variables. A wide variety of workshop activities were represented among the participating workshops in this first pretest.

The first pretest contained 58 items divided into four sub-scales: Manual Skills (11 items), Cognitive Skills (22 items), Dependability-Responsibility (15 items), and Social-Emotional (10 items). Data were analyzed in terms of percentage of enrollees rated at each level for each item in the scale; inter-item correlations; item-subscale correlations, and item-total score correlations.

Table 1 presented the subscale and total score correlations for the first pretest form. The correlation between the Social-Emotional subscale and the other subscales were relatively low, and a large number of items in the S-E subscale showed poor percentage distribution among the levels. The inter-correlation between the other three subscales were relatively high and, after the poor items were removed, the homogeneity among these subscales increased. Further, the correlation between each subscale and the total score was extremely high, except for the S-E subscale. Therefore, all of the items that showed appropriate statistical properties were retained for the second pretest, but separate subscale designations were eliminated. In effect, an analysis of the retained items revealed that some general phenomenon, vocational competency, was being measured.

TABLE 1

SUBSCALE AND TOTAL SOCIAL COMPETENCY SCALE INTERCORRELATIONS

N = 330

	Cognitive Skills	Dependability-Responsibility	Social-Emotional	Total
Manual Skills	.74	.62	.37	.84
Cognitive Skills		.65	.38	.92
Dependability-Responsibility			.51	.84
Social-Emotional				.60

Data on the internal consistency of the first pre-test is presented in Table 2 in the form of odd-even correlation coefficients.

TABLE 2

ODD-EVEN INTERNAL CONSISTENCY COEFFICIENTS (PEARSON r^*) FOR SUBSCALES SCORES

N= 330

	r
Manual Skills	.86
Cognitive Skills	.96
Dependability-Responsibility	.86
Social-Emotional	.86

*corrected by Spearman-Brown prophecy formula

On the basis of these analyses, items were rewritten or deleted and the second pretest form was prepared.

Second Pretest

Twenty-three workshops provided ratings on 330 individuals. Eight of these workshops had participated in the first pretest. In addition to the ratings on the scale, the workshops were asked to provide personal data for each enrollee, such as sex, I.Q., and chronological age. In this sample there were 201 males and 129 females. Characteristics of the sample in this pretest are presented in Table 3. It is evident that the males and females are comparable on these characteristics.

TABLE 3

PERCENTAGE DISTRIBUTION OF MALES AND FEMALES FOR CHRONOLOGICAL AGE, I.Q., AND WORKSHOP EXPERIENCE

N = 330

CHRONOLOGICAL AGE (IN YEARS)			IQ			WORKSHOP EXPERIENCE		
	Males	Females		Males	Females		Males	Females
18-24	61	61	20-34	2	3	0-6 mos.	24	24
25-31	19	16	35-49	11	13	7 mos.-2 yrs.	38	44
32-38	4	6	50-64	34	38	3-5 yrs.	21	25
39+	6	5	65-79	39	33	6-8 yrs.	11	5
Omit	10	12	Omit	14	13	Omit	6	2

The second pretest form contained 33 items which were grouped by content area.

The correlations between the total vocational competency score and the personal characteristics of enrollees were of zero order. The highest correlation was .18 between I.Q. and total score.

The same item analyses were conducted for the second pretest as for the first pretest. The correlation between the items and the total score ranged between .30 and .85, the median correlation being .67. The internal consistency of this form of the scale, as determined by the Odd-Even method (Pearson correlation coefficient, corrected by Spearman-Brown Prophecy formula) was .95.

Based on these analyses the final form of the scale was written.

Final Form

The norming sample consisted of 562 mentally retarded individuals in 45 workshops representative of all geographic areas of the United States. In this sample there were 344 males and 218 females. Characteristics of the norming sample are presented in Tables 4 through 8. The percentage distribution for each of the variables reported in these tables do not differ between the sexes.

TABLE 4

PERCENTAGE DISTRIBUTION

OF MALES, FEMALES AND TOTAL SAMPLE BY CHRONOLOGICAL AGE

CA	Males N=344	Females N=218	Total N=562
18-20 years	36	39	37
21-23 years	26	23	25
24-26 years	13	12	12
27-29 years	5	3	4
30+ years	17	16	16
Omit	3	7	5

TABLE 5

PERCENTAGE DISTRIBUTION

INTELLIGENCE QUOTIENTS OF MALES, FEMALES AND TOTAL SAMPLE

IQ	Males N=344	Females N=218	Total N=562
20-34	6	5	5
35-49	25	21	23
50-59	19	27	22
60-69	31	28	30
70-75	18	19	18
Omit	1	0	1

TABLE 6

PERCENTAGE DISTRIBUTION

OF MENTAL AGES OF MALES, FEMALES, AND TOTAL SAMPLE

MA	Males N=344	Females N=218	Total N=562
3-5 years	10	12	11
6-7 years	10	13	11
8-9 years	15	13	14
10-11 years	19	17	18
12+ years	15	14	14
Omit	31	31	32

TABLE 7

PERCENTAGE DISTRIBUTION

OF SCHOOL EXPERIENCE OF MALES, FEMALES AND TOTAL SAMPLE

School Experience	Males N=344	Females N=218	Total N=562
0-2 years	10	7	9
3-5 years	11	12	11
6-8 years	26	20	24
9-11 years	26	28	26
12+ years	16	22	18
Omit	11	11	12

TABLE 8

PERCENTAGE DISTRIBUTION

OF WORKSHOP EXPERIENCE OF MALES, FEMALES AND TOTAL SAMPLE

Workshop Experience	Males N=344	Females N=218	Total N=562
0-6 months	25	33	28
7-12 months	19	21	19
1-2 years	24	24	24
3-5 years	21	15	18
6+ years	10	7	9
Omit	1	0	1

The final form of the scale consisted of 30 items and is presented in Appendix B.

Prior to establishing the norms for the final form of the scale a *t* test was computed between the means of the male and female total social competency scores. Table 9 indicates that there is a significant difference between their means in favor of females. Thus, analyses of this scale were performed for males and females separately.

TABLE 9

STANDARDIZATION MEANS, STANDARD DEVIATIONS

AND *t* TEST BETWEEN MALES AND FEMALES

	Males N=344	Females N=218	*t*
Mean	79.82	87.30	3.49*
S.D.	26.05	23.86	

*P $<$.01

Table 10 presents the item-total score correlations for males and females. The item intercorrelations and the percentage of ratings for each item alternative for males and females are presented in Appendices C and D respectively.

The correlations of vocational competency scores with chronological age, I.Q., MA, school experience, and workshop experience are reported in Table 11. For both males and females the correlations of I.Q. and previous school experience with vocational competency scores were signigicant.

TABLE 10

CORRELATIONS BETWEEN EACH ITEM AND THE TOTAL SCORE

FOR MALE AND FEMALE ENROLLEES

	Males	Females
N	344	218
Item		
1	.46	.40
2	.57	.57
3	.57	.51
4	.48	.50
5	.61	.53
6	.61	.59
7	.58	.60
8	.71	.67
9	.69	.72
10	.69	.66
11	.76	.71
12	.52	.36
13	.63	.58
14	.69	.71
15	.67	.62
16	.66	.60
17	.74	.71
18	.75	.73
19	.77	.73
20	.63	.50
21	.79	.69
22	.68	.60
23	.72	.76
24	.72	.66
25	.61	.45
26	.66	.64
27	.60	.59
28	.65	.61
29	.57	.53
30	.63	.60

TABLE 11

CORRELATIONS OF VOCATIONAL COMPETENCY

SCORE WITH CHRONOLOGICAL AGE, IQ.

MA, SCHOOL EXPERIENCE AND WORKSHOP EXPERIENCE

	Males N=344	Females N=218
CA	.06	-.03
IQ	.48*	.38*
MA	.09	-.01
School Experience	.15*	.20*
Workshop Experience	.04	-.07

*P $<$.01

Reliability of the Final Form of the Scale

Data on the reliability of the final form of the scale are presented in Table 12 in the form of Odd-Even and Test-Retest correlations. Odd-Even correlations were computed for the male-female and total sample and indicate a high degree of internal consistency.

TABLE 12

ODD-EVEN INTERNAL CONSISTENCY AND TEST-RETEST

RELIABILITY COEFFICIENTS (PEARSON *r*)

	Odd-Even N	*r**	Test-Retest N	*r*
Male	344	.95		
Female	218	.95		
Total	562	.95	54	.85

*corrected by Spearman-Brown prophecy formula

Eleven workshops, representative of the norming sample, were selected for the purpose of obtaining test-retest data. Each workshop provided five retest ratings of enrollees who had been randomly selected for this purpose. Retest ratings were obtained approximately one month after the norming rating. Considering that in some instances, the retest rating was provided by a workshop supervisor who did not provide the norming rating, the test-retest coefficient of .85 indicates that the scale can be used reliably by individuals who are familiar with the enrollee's performance.

Derivation of Percentile Norms

To establish norms the scores obtained from the normative sample were converted to percentiles for both males and females separately. Cumula-

tive percentiles were computed for each sex from these data and the percentile norms were derived by plotting a "best-fit" curve through the cumulative percentages. This procedure assumes that the population percentiles follow a systematic progression. This "best-fit" curve removes the slight fluctuation due to sampling error and provides a smooth curve thus yielding an estimate of the population percentile for any particular score value.

Appendix E presents the percentile conversion tables for male and female mentally retarded adults. This table permits the user to determine the percentile rank for a given vocational competency score for either a male or female enrollee. For example, a male who has a vocational competency score of 73 is at the 45th percentile. That is, in the population of mentally retarded workshop enrollees, 45% have scores lower than his score. A female who has a score of 73 is at the 28th percentile, indicating that only 28% of the female enrollees have scores lower than her score. Thus, the percentile rank of any individual can be determined by consulting Appendix E.

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APPENDICES

APPENDIX A

WORKSHOP QUESTIONNAIRE

NAME OF WORKSHOP _____

ADDRESS _____

_____

1. How many trainees are enrolled in your workshop whose primary learning problem is due to mental retardation? _____

2. What percentage of the total trainees group do the mentally retarded represent? _____%

3. Do you have the following information on each mentally retarded trainee readily available to you?

	YES	NO
A. I Q	_____	_____
B. Mental Age	_____	_____
C. Prior school experience	_____	_____
D. Prior workshop experience	_____	_____
E. Prior work experience (excluding workshop)	_____	_____
F. Cause of retardation	_____	_____
G. Hearing, visual, and/or motor defects	_____	_____
H. Parents' education and occupation	_____	_____

4. Please list the five or six major jobs or contracts in which the mentally retarded are engaged in your workshop.

_____ _____

_____ _____

_____ _____

_____

APPENDIX B

VOCATIONAL COMPETENCY SCALE FOR THE MENTALLY RETARDED

1. INITIATING TASK

When he arrives in the morning he proceeds with the daily routine (hanging up wraps, getting materials, preparing work area, etc.) without delay.

A) Nearly always
B) Frequently
C) Approximately half of the time
D) Occasionally
E) Hardly ever

2. REMEMBERING INSTRUCTIONS

After a task has been explained and demonstrated to him he needs the instructions repeated before he can perform the task on his own.

A) Nearly always
B) Frequently
C) Approximately half of the time
D) Occasionally
E) Hardly ever

3. FOLLOWING VERBAL INSTRUCTIONS

He can follow verbal instructions--

A) when they are accompanied by demonstration.
B) without a demonstration if one specific task is involved.
C) without a demonstration, when it involves two specific tasks within the same job.
D) without a demonstration, when it involves three or more tasks within the same job.

4. READING ABILITY

A) He cannot read any signs or instructions.
B) He can read signs which contain one or two familiar words, (e.g., STOP or OFF-ON).
C) He can read signs which contain one or two words or brief instructions that he has not seen before.
D) He can read instructions consisting of relatively long instructions that he has not seen before.

5. MEASURING

A) He cannot use measuring instruments of any kind.
B) Given a measuring stick or object of a specific length, he can measure materials to that length.
C) He can measure to the nearest foot using a calibrated yardstick.
D) He can measure to the nearest inch using a calibrated yardstick.

6. REQUESTING MATERIALS

He requests additional materials when he runs out of them while performing a task.

A) Hardly ever.
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

7. SPECIFYING WHAT IS UNCLEAR

A) He indicates that he does not understand the task only after he attempts to perform the task.
B) He indicates, before attempting the task, that he does not understand the task but gives no specifics.
C) He indicates in general terms what is unclear to him before attempting the task.
D) He indicates specifically what is unclear to him before attempting the task.

8. KNOWLEDGE OF JOB

When a job includes a number of tasks, one of which is performed by him--

A) he knows only the task he is required to perform.
B) in addition to his own task, he knows either the proceeding or succeeding task.
C) he knows both the immediately preceding and succeeding tasks.
D) he knows all of the tasks required to perform the job.

9. PERFORMING PREVIOUSLY LEARNED TASKS

When required he performs within the same day previously learned tasks relating to--

A) one job only.
B) two jobs.
C) three jobs.
D) four or more jobs.

10. REORIENTATION TO TASK

When removed from a task for a short period (one to two weeks) in order to perform some other task:

A) he needs to be completely reoriented to the previous task.
B) he needs to be given a number of specific details before he can pursue the previous task.
C) he needs to be given only one or two specific details before he can pursue the previous task.
D) he can pursue the previous task with no further instruction.

11. TRANSFERRING SKILLS

He is able to transfer previously learned skills to a new task.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

12. TIME IN LEARNING THE TASK

He can be taught a task if the sequence of skills can be completed--

A) within 5 minutes.
B) within 10 minutes.
C) within 15 minutes.
D) when more than 15 minutes is required to complete the task.

13. TIME IN COMPLETING THE TASK

On a task which can be completed by a non-retarded individual within 20 minutes--

A) he can complete the task in two hours.
B) he can complete the task in one hour.
C) he can complete the task in 40 minutes.
D) he can complete the task in approximately the 20 minute period.

14. WORK IMPROVEMENT WITH EXPERIENCE

With experience the quality of his work--

A) shows little improvement .
B) slowly but gradually improves.
C) improves at a fairly rapid rate.
D) rapidly improves.

15. OPERATING EQUIPMENT WITH MOVING PARTS

When he operates equipment with moving parts he causes the equipment to become inoperative (i.e., breaks down, jams).

A) Nearly always
B) Frequently
C) Approximately half of the time
D) Occasionally
E) Hardly ever

16. OPERATING MANUALLY POWERED MACHINES

He can perform tasks in which manually powered machines (e.g., hand or foot lever) are used without supervision.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

17. FOLLOWING SAFETY INSTRUCTIONS

When instructed as to safe operating procedures he follows them.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

18. CORRECTING ERRORS

When he makes an error or spoils some material he will, on his own, correct the error or use new material.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

19. ADEQUACY OF PERFORMANCE

When required to perform a task in which there are several discrete operations the product has to be discarded or redone.

A) Nearly always
B) Frequently
C) Approximately half of the time
D) Occasionally
E) Hardly ever

20. SEEKING HELP

He seeks help from his immediate supervisor when he is having difficulty in performing a task.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

21. RESPONSE TO CHANGES IN ROUTINE

When there are changes in the routine, such as changes in time schedules, organization of the work, composition of the group--

A) he stops working.
B) there is a substantial decrease in his productivity.
C) there is a moderate decrease in his productivity.
D) there is a small decrease in his productivity.
E) there is no decrease in his productivity.

22. EXPLAINING TASKS

When asked to explain (demonstrate and/or verbally instruct) how to perform a task to another worker--

A) he is unable to do so.
B) he gives an incomplete explanation.
C) he gives a complete but general explanation.
D) he gives a complete explanation with specific details.

23. OFFERING ASSISTANCE

He offers assistance when someone he is working with needs help.

A) Hardly ever
B) Occasionally
C) Approximately helf of the time
D) Frequently
E) Nearly always

24. REPORTING PROBLEMS

He reports when there is a dangerous situation or equipment is in poor repair.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

25. REACTION TO FRUSTRATION

When he does not get what he wants or things are not going well--

A) he stops working.
B) there is a substantial decrease in his productivity.
C) there is a small decrease in his productivity.
D) there is no decrease in his productivity.

26. RESPONSE TO MOVEMENT OR NOISE

When there is considerable movement or noise in his immediate work area--

A) he stops working.
B) there is a substantial decrease in his productivity.
C) there is a moderate decrease in his productivity.
D) there is a small decrease in his productivity.
E) there is no decrease in his productivity.

27. ACCEPTING SUGGESTIONS

When the supervisor makes suggestions for improving his performance--

A) he stops working.
B) there is a substantial decrease in his productivity.
C) there is a moderate decrease in his productivity.
D) there is a small decrease in his productivity.
E) there is no decrease in his productivity.

28. REACTION TO SUPERVISION

When left unsupervised--

A) he stops working.
B) there is a substantial decrease in his productivity.
C) there is a moderate decrease in his productivity.
D) there is a small decrease in his productivity.
E) there is no decrease in his productivity.

29. RETURNING FROM BREAKS

He returns promptly from breaks, such as coffee, lunch or recreation, without being reminded.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

30. CLEANING UP WORK AREA

He cleans up his work area when a task is completed or the work day concluded without being reminded.

A) Hardly ever
B) Occasionally
C) Approximately half of the time
D) Frequently
E) Nearly always

APPENDIX C

VOCATIONAL COMPETENCY SCALE

INTER ITEM CORRELATIONS FOR MALES

(DECIMALS OMITTED)

N= 344

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
2	24																												
3	19	46																											
4	15	33	30																										
5	18	37	45	49																									
6	31	39	29	26	31																								
7	20	40	52	33	34	31																							
8	30	46	47	40	48	46	47																						
9	29	39	45	32	44	49	44	72																					
10	29	48	42	33	44	42	41	56	59																				
11	33	45	50	39	56	39	40	62	61	57																			
12	19	22	33	33	34	29	36	47	44	33	42																		
13	20	32	39	30	42	29	37	48	41	43	50	38																	
14	29	46	45	33	44	38	37	62	55	50	61	39	47																
15	19	30	33	30	44	32	40	41	42	38	43	38	52	38															
16	18	35	37	30	46	30	38	47	45	42	50	40	51	44	78														
17	32	32	34	35	44	34	35	43	41	46	55	32	43	52	54	49													
18	33	44	42	35	44	42	36	48	42	49	61	31	48	52	41	46	58												
19	32	38	43	42	44	37	41	51	46	52	57	41	49	53	52	50	66	64											
20	28	33	27	32	29	47	43	40	36	36	44	25	32	39	32	31	42	51	46										
21	39	43	44	34	40	42	40	50	47	53	54	43	54	52	54	47	62	59	66	42									
22	29	39	43	29	41	45	49	54	52	46	50	40	41	52	44	51	42	55	50	45	47								
23	32	32	38	23	42	46	38	48	46	46	48	36	41	41	44	43	52	53	52	51	53	50							
24	26	39	36	28	39	49	41	53	48	48	51	30	41	46	42	42	55	61	54	56	49	49	67						
25	27	23	26	19	26	37	26	34	36	34	36	22	35	38	45	35	47	43	44	33	56	37	45	39					
26	23	33	37	24	34	39	28	35	35	46	49	20	41	44	43	38	50	52	44	33	63	39	39	38	54				
27	23	31	26	22	28	36	27	26	26	41	40	18	27	33	32	30	50	40	42	37	51	35	46	42	53	54			
28	35	31	28	23	24	44	27	32	36	42	41	25	32	44	31	29	46	46	47	36	59	33	39	35	50	67	58		
29	31	20	20	17	29	27	25	27	28	36	39	22	31	33	30	25	48	43	41	33	46	31	42	37	39	38	33	50	
30	37	30	23	22	27	44	38	42	45	36	35	33	39	39	32	29	37	38	38	44	42	36	49	46	41	41	38	50	54

APPENDIX C

VOCATIONAL COMPETENCY SCALE

INTER ITEM CORRELATIONS FOR FEMALES

(DECIMALS OMITTED)

N= 218

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
2	21																												
3	12	34																											
4	12	30	36																										
5	31	28	30	46																									
6	28	33	25	21	15																								
7	14	31	37	33	39	38																							
8	24	39	38	46	45	26	43																						
9	17	39	46	40	39	44	38	54																					
10	17	35	36	25	33	34	42	49	58																				
11	20	42	41	38	43	40	40	57	62	54																			
12	-02	18	20	23	32	12	28	30	28	25	30																		
13	13	30	23	29	46	21	41	43	34	40	37	41																	
14	21	43	39	29	33	42	48	54	49	52	55	25	47																
15	12	29	36	33	52	21	44	32	38	26	35	36	45	37															
16	13	30	39	37	45	18	37	39	39	36	38	30	43	36	78														
17	24	37	33	40	41	29	36	47	50	37	44	29	43	47	62	52													
18	24	44	37	36	33	40	37	48	51	57	52	17	39	54	32	37	53												
19	19	43	30	30	37	43	39	47	59	53	54	36	36	46	41	36	58	60											
20	17	20	11	20	12	44	29	27	31	28	32	24	22	25	25	26	32	31	30										
21	35	38	27	27	22	49	32	38	46	38	49	21	32	52	27	21	43	57	58	33									
22	16	39	40	41	31	40	36	46	49	40	48	19	28	40	25	29	43	49	44	35	39								
23	32	46	34	33	31	45	46	56	49	47	55	19	39	58	36	39	47	55	52	42	45	56							
24	20	37	30	27	20	40	27	48	44	36	41	19	35	44	23	29	43	49	53	41	49	47	67						
25	27	25	16	16	17	28	24	17	23	26	28	14	21	34	16	06	18	30	23	18	48	23	34	18					
26	30	24	26	24	23	32	34	29	48	49	45	08	32	47	34	36	33	48	33	27	51	29	49	42	51				
27	27	23	20	15	26	43	31	29	41	35	33	14	33	47	21	20	39	34	42	26	61	23	38	42	40	43			
28	31	25	22	19	14	45	31	30	43	40	39	04	26	49	28	25	35	42	40	26	52	17	37	33	40	60	51		
29	32	22	20	16	21	27	15	23	28	27	26	11	32	30	36	28	42	33	32	20	36	15	38	32	19	36	31	52	
30	38	36	21	10	18	42	33	29	35	42	34	07	26	33	23	18	32	37	39	35	38	25	52	41	32	42	41	52	53

APPENDIX D

PERCENTAGE OF RATINGS FOR EACH ITEM ALTERNATIVE FOR MALES AND FEMALES

		A	B	C	D	E	OMIT
1.	M	17	16	9	14	43	1
	F	13	16	11	13	46	1
2.	M	25	21	16	26	11	0
	F	14	23	17	29	17	0
3.	M	61	21	12	5		1
	F	56	21	13	8		1
4.	M	25	34	32	8		1
	F	16	29	34	18		2
5.	M	35	37	8	16		3
	F	28	36	14	18		4
6.	M	16	16	10	18	36	0
	F	12	8	7	23	49	0
7.	M	45	29	17	7		2
	F	38	26	22	13		1
8.	M	42	25	17	15		1
	F	31	23	24	20		2
9.	M	25	31	22	22		0
	F	17	29	28	26		0
10.	M	20	26	30	23		1
	F	9	25	38	27		1
11.	M	24	30	13	22	12	0
	F	12	27	19	26	15	1
12.	M	36	23	19	21		1
	F	35	27	20	16		2
13.	M	17	31	37	12		2
	F	11	33	39	14		3
14.	M	22	50	20	8		0
	F	16	42	32	9		0

PERCENTAGE OF RATINGS FOR EACH ITEM ALTERNATIVE

FOR MALES AND FEMALES

		A	B	C	D	E	OMIT
15.	M	16	14	8	24	21	17
	F	13	10	8	23	24	22
16.	M	28	13	10	18	16	15
	F	21	16	11	13	18	20
17.	M	11	14	16	21	30	7
	F	6	11	19	23	32	8
18.	M	24	24	14	22	14	2
	F	22	15	15	22	24	1
19.	M	13	17	13	35	15	6
	F	7	17	10	36	26	5
20.	M	19	20	15	19	26	1
	F	9	15	10	27	39	1
21.	M	20	20	14	25	17	2
	F	9	20	21	30	19	1
22.	M	36	37	21	4		2
	F	24	32	33	11		0
23.	M	30	22	9	20	17	1
	F	23	21	11	21	23	0
24.	M	27	17	9	21	22	4
	F	20	14	9	22	33	3
25.	M	25	35	25	14		1
	F	22	32	29	17		0
26.	M	26	17	16	20	20	0
	F	19	20	16	29	16	0
27.	M	14	12	12	21	38	2
	F	6	15	11	29	37	1
28.	M	13	21	14	25	27	0
	F	10	15	14	27	34	0

PERCENTAGE OF RATINGS FOR EACH ITEM ALTERNATIVE

FOR MALES AND FEMALES

		A	B	C	D	E	OMIT
29.	M	13	13	12	19	40	3
	F	6	11	14	16	51	1
30.	M	26	16	11	16	31	1
	F	14	21	11	18	34	1

APPENDIX E

VOCATIONAL COMPETENCY SCALE PERCENTILE NORMS

RAW SCORE	MALE	FEMALE
129 and above	99	99
126 - 128	99	98
123 - 125	98	95
120 - 122	96	93
117 - 119	94	90
114 - 116	92	88
111 - 113	89	85
108 - 110	87	82
105 - 107	83	78
102 - 104	80	75
99 - 101	75	70
96 - 98	72	66
93 - 95	68	61
90 - 92	63	56
87 - 89	60	52
84 - 86	56	47
81 - 83	53	44
78 - 80	50	37
75 - 77	48	33
72 - 74	45	28
69 - 71	40	25
66 - 68	38	22
63 - 65	34	21
60 - 62	30	18
57 - 59	25	15
54 - 56	22	12
51 - 53	19	9
48 - 50	15	6
45 - 47	12	5
42 - 44	10	3
39 - 41	7	2
36 - 38	5	2
33 - 35	3	2
30 - 32	2	2